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Cont'd

3. (amended) An optical filter, as claimed in claim 1, wherein one of the dielectric stack and spacer layer, varies in thickness spatially, over the metallic layer.

4. (amended) An optical filter, as claimed in claim 1, wherein one of the dielectric stack, and spacer layer, thickness varies circularly over the metallic layer.

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5. (amended) An optical filter, as claimed in claim 1, wherein one of the dielectric stack, and spacer layer thickness varies linearly over the metallic layer.

6. (amended) An optical filter as recited in claim 1 wherein the wavelength absorbed varies with linear and/or rotational position of the stack and/or space, in relation to incident light.

7. (amended) An optical filter as recited in claim 1 wherein the spacer layer is formed from a low refractive index material and is equal to even integer multiples of a quarter-wave optical thickness, including a zero (absentee layer), and symbolically described as;

Substrate / M nL (HL)^x H / ambient

where:

M is the metal mirror thin film;

n = 0, 2, 4, 6, etc...; even integer multiples of the quarter wave optical thickness of the spacer layer; and

H and L represent quarter wave optical thicknesses respectively of the high and low refractive index layers.

8. (amended) An optical filter as recited in claim 1 wherein the spacer layer is formed from a low refractive index material and is equal to odd integer multiples of quarter-wave (optical thickness), symbolically described as;

Substrate / M nH (LH)^x / ambient

where:

M is the metal mirror thin film;

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n = 0,1,3,5,7,..., odd integer multiples of the quarter wave optical thickness of the spacer layer; and H and L represent quarter wave optical thicknesses respectively of the high and low refractive index layers.

Claim 9 deleted

10. (amended) An optical filter as recited in claim 1 further comprising a tiered multi-layer stacking sequence of:

Substrate / M H (LH)⁴ / ambient where H and L equal one quarter-wave optical thicknesses, of relatively high and low refractive index materials, respectively, zinc sulphide and thorium flouride.

11. (amended) An optical filter as recited in claim 1 further comprising a tiered multi-layer stacking sequence of:

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Substrate / M HHH (LH)⁴ / ambient where H and L equal one quarter-wave optical thicknesses, of relatively high and low refractive index materials, respectively, zinc sulphide and thorium flouride.

12. (amended) An optical filter as recited in claim 1 further comprising a tiered multi-layer stacking sequence of:

Substrate / M (HL)²xH(LH)² / ambient where H and L equal one quarter-wave optical thickness, of relatively high and low refractive index materials, respectively, zinc sulphide and thorium flouride; 'x' is between about 4 through 1000.

13. (amended) An optical filter, as claimed in claim 1 incorporating additional dielectric spacers, configured to steepen the absorption characteristic edge and so square off filter performance.

14. (amended) An induced absorption optical filter as recited in claim 1 configured to operate in the wavelength band 8 to 12μm.